Amoul®

P20 P30

Instruction Manual

High-Frequency Oscillation Expectoration Machine

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Product Information

Description

Thank you for purchasing the High-Frequency Oscillation Expectoration Machine.

Please read and understand this Manual in its entirety before using the device so as to properly operate the Machine. Maintain this Manual properly after reading, and place it in a convenient location.

Product name:	High-Frequency Oscillation Expectoration Machine
Specifications:	P30/P20
Medical device registration certificate No.:	
Product technical requirements No.:	
Production license No.:	Y.S.Y.J.X.S.C. X No.20020533
Name of registrant:	Ambulanc (Shenzhen) Tech. Co., Ltd.
Residence of registrant:	A1302, Shenzhen National Engineering Laboratory Building, No.20, Gaoxin South 7th Road, High-Tech Park, Yuehai Street, Nanshan District, Shenzhen
Name of production enterprise:	Ambulanc (Shenzhen) Tech. Co., Ltd.
Production address:	3/F, Building C, 5# Skyworth Innovation Valley, No.1 Tangtou Road, Shiyan Street, Baoan District, Shenzhen
Date of manufacture	See host tab
Service life:	5 years
Manual revision date:	

⚠Caution:

The device is not designed for home use.

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- The assembly operation, extension, re-adjustment, improvement and repair are carried out by the personnel approved by Ambulanc (Shenzhen) Tech. Co., Ltd.;
- The relevant electrical equipment meets the national standards;
- The device is used according to the operating instructions.
- Ambulanc (Shenzhen) Tech. Co., Ltd. shall not be responsible for the safety, reliability and operation of the products in case of the following situations:
- Components are disassembled, tensioned and readjusted;
- The device repaired or modified by personnel who are not authorized by Ambulanc (Shenzhen) Tech. Co., Ltd.;
- The product is not used correctly according to the Instruction Manual.

• Maintenance service

Free service scope:

- The free service is available for all devices that meet the scope of warranty service regulations of Ambulanc (Shenzhen) Tech. Co., Ltd.
- Please note that the equipment will not be covered under the following conditions according to the warranty scope:
- The customer fails to fill in and return the device warranty card within 30 days after the installation acceptance is completed.
- The serial number of the equipment provided by the customer is incorrect (our company confirms whether it is guaranteed according to the serial number of the equipment).

Charged service scope:

- Ambulanc (Shenzhen) Tech. Co., Ltd. will implement fee-based services for the equipment exceeds the scope of warranty service regulations of Ambulanc (Shenzhen) Tech. Co., Ltd.;
- Even during the warranty period, the product needs maintenance due to the following reasons:
- Artificial damage;
- Improper use;
- Grid voltage exceeding the specified range of equipment;
- Irresistible natural disasters;
- Replace parts or consumables that are not licensed by Ambulanc (Shenzhen) Tech. Co., Ltd. or have the machine repaired by personnel not authorized by Ambulanc (Shenzhen) Tech. Co., Ltd.

Warning:

If a hospital or an institution that is responsible for using this device fail to achieve a satisfactory repair/maintenance plan, abnormal device failure may be caused and even human health may be endangered.

Assurance

Manufacturing process and raw materials:

Ambulanc (Shenzhen) Tech. Co., Ltd. guarantees that under normal operation and maintenance conditions, the equipment will be free of production process and raw material failures during the warranty period.

After-sales service unit

After-sale service department of Ambulanc (Shenzhen) Tech. Co., Ltd.

Address: 3/F, Building C, 5# Skyworth Innovation Valley, No.1 Tangtou Road, Shiyan Street, Baoan District, Shenzhen

Zip code: 518108

Free service hotline:

Tel: +86-755 26072215 Fax: +86-755 23016012

Website:http://www.ambulmed.com

E-MAIL: manager@ambulmed.com

Return

Return procedure

If the products need to be returned to Ambulanc (Shenzhen) Tech. Co., Ltd., please use the following steps:

- To obtain the right of return: the customer service department of Ambulanc (Shenzhen) Tech. Co., Ltd. to provide the number of Ambulanc product series marked on the outer shipping box, if the number is not clear enough to be identified, the return will not be accepted. Please indicate the product model and briefly describe the reason for the return.
- Shipping costs: the user shall bear the shipping costs (including customs charges) of transporting the device to Ambulanc (Shenzhen) Tech. Co., Ltd. for repairs.

Important information

1 After purchasing this product, the customer is fully responsible for the maintenance and management of the product.

2 Even during the warranty period, the quality guarantee does not include the following contents:

- Damage or loss caused by wrong or rough handling;
- Damage or loss caused by force majeure such as fire, earthquake, flood or lightning.
- Failure to meet the use conditions specified in this system, such as damage or loss caused by insufficient power supply, incorrect installation or unsatisfactory environmental conditions.
- Transportation damage caused by improper packing when returning goods.
- Damage or loss caused by failure to use the system in the initial purchase area.
- Damage or loss of systems not purchased from Ambulanc (Shenzhen) Tech. Co., Ltd. or its authorized dealers or agents.

3 This equipment is only for qualified medical personnel with professional qualification certificate.

4 It is forbidden to modify the software or hardware or any other parts of this product without authorization.

5 Under any circumstances, Ambulanc (Shenzhen) Tech. Co., Ltd. will not be

responsible for any problems, damages or losses caused by reinstallation, modification or repair of this system by personnel not designated by Ambulanc (Shenzhen) Tech. Co., Ltd.

6 This system is designed to provide doctors with auxiliary tools for clinical treatment.

7 The doctor is liable for the treatment process. Ambulanc (Shenzhen) Tech. Co., Ltd. shall not bear any responsibilities for the treatment process.

8 Be sure to back up important data to external storage media such as clinical records and notebooks.

9 Ambulanc (Shenzhen) Tech. Co., Ltd. shall not be responsible for the loss of data stored inside the system due to operator errors or abnormal circumstances.

10 Ambulanc (Shenzhen) Tech. Co., Ltd. shall not be responsible for damage not caused by defects in the device itself or damage caused by user error.

11 Ambulanc (Shenzhen) Tech. Co., Ltd. shall not be responsible for the damage caused by the continued use of this device after exceeding its service life.

12 Ambulanc (Shenzhen) Tech. Co., Ltd. shall not be responsible for the return shipping costs if the warranty claim is denied.

13 This Manual contains warnings about foreseeable potential hazards. We should keep strong vigilance against unspecified dangers at any time. Ambulanc (Shenzhen) Tech. Co., Ltd. shall not be liable for any damage or loss caused by negligence or disregard of the precautions specified in this instruction manual.

14 Once the administrator of this system changes, this Manual must be handed over.

1. Safety Instructions

Please read these Safety Instructions carefully. These Safety Instructions are integral parts of the equipment and must be consulted frequently. For safety reasons, please pay attention to the following matters:

1.1. Warnings, Cautions and Tips

Safety instructions are marked as follows in this Manual:

⚠Warning:

Prompt potential danger or unsafe operation, which may lead to death or serious personal injury or property loss if not avoided.

⚠Caution:

Give warning to the situation that will cause equipment damage and may cause wrong therapeutic effect.

⚠Hazards:

Prompt urgent danger, which may lead to death, serious personal injury or property loss if not avoided.

Tips:

Provide useful prompts and important instructions.

1.2. Security Information

All users must read this Manual carefully before using the High-Frequency Oscillation Expectoration Machine. The Manual tells the user the operation procedures that must be carefully noted. Failure to follow them may lead to abnormal operation and may cause harm to the High-Frequency Oscillation Expectoration Machine or human body. Ambulanc (Shenzhen) Tech. Co., Ltd. shall not be liable for any damage or loss caused by negligence or disregard of the precautions specified in this instruction manual, and will not provide free repairs for such faults.

1.3. Safety Cautions

When using the device, especially when there are children present, the basic safety precautions should be strictly observed.

⚠Warning:

In order to avoid the danger of electric shock, please follow the instructions, otherwise personal injury or equipment damage may be caused. Please take off the airbag vest immediately after use, and disconnect the power supply of the host machine.

⚠Warning:	• When the device is used for patients with physical limitations or weak cognitive ability, the whole treatment process must be closely monitored. • Check whether the equipment, connecting cables and accessories can work normally before use. Please do not use this device in case of failure discovered. • Keep the power cord and device away from hot objects. • Do not use the device in a humid environment. • Do not expose any part of the device to excessive humid environment or immerse it in water or other liquids, and avoid any liquids spilling on the device or accessories. • Do not use formaldehyde or other flammable reagents to clean the device, otherwise explosion and fire may be caused, and do not use an irritant cleaner or solvent to clean the device, otherwise it may damage the device. • Please unplug the power supply before cleaning the device, otherwise electric shock or device damage may be caused. • Please do not operate the device without connecting the vest and the host machine through an air hose, otherwise the device may be damaged. • It is required to use a fuse protector with rated current consistent with the device specifications. When replacing fuse, the power supply should be disconnected and the switch should be closed before operation to avoid electric shock. • During operation, keep the device away from any electromagnetic interference sources (such as motor, generator, X-ray equipment, radio transmitter, cellular mobile phone, nuclear magnetic resonance and other device), which may interfere with the signals being collected and analyzed. See chapter 11 "EMC" for details. • Avoid using the device when the temperature of device housing material rises to the ignition point, or it is near the

	combustible agent or in oxygen-enriched environment, so as to avoid explosion or fire. • This device can only be used by a single patient at one time. • Please do not disassemble the High-Frequency Oscillation Expectoration Machine, otherwise there may be a risk of electric shock. The device does not contain any parts that can be disassembled by the user. • If you want to use the device combined with any device not mentioned in this Manual, please consult the manufacturer. • When the device is connected with the patient, it is forbidden to perform any functional examination to avoid accidental electric shock to the patient. • In order to avoid causing danger or polluting the environment, it is necessary to comply with the relevant local laws and regulations or the waste disposal system of hospitals to dispose packaging materials. Packaging materials must be kept out of the reach of children. • Do not make any modifications to the device. • Do not open the housing of the device, otherwise there may be danger of electric shock. Maintenance or upgrading of the device can only be conducted by the maintenance personnel trained and authorized by the Company.
⚠**Caution:**	• Please take good care of the device to prevent it from falling, collision, strong shock or other mechanical force damage. • In order to avoid polluting or infecting personnel, environment or other device, the device and its accessories that have reached the service life must be disposed according to the relevant local regulations or hospital regulations.
⚠**Tips:**	• Please place this Manual near the device so that it can be accessed conveniently and timely when operating the device. • When operating the device, the user should stand in front of the device. • For the device to be available at all times, connect the power supply in advance, and connect the air hose and vest. • In case of falling or improper operation of the device, a test should be performed by the user first. If any faults are detected, please do not use the device again and contact the designated maintenance personnel for repair.

	• Please install the device in a position where the device is easy to be observed, operated and maintained.

1.4. Software

A large number of quality assurance measures have been taken when developing the device software, and the risks caused by software defects are minimal.

1.5. Accessories/Spare Parts

⚠ Caution:

- Only the manufacturer, Ambulanc (Shenzhen) Tech. Co., Ltd., or its authorized professionals may perform maintenance measures, such as inspection and repair operations.
- The use of accessories of other manufacturers will lead to failures and incompatibilities. Please keep in mind that under these circumstances, the rights and responsibilities of warranty will be invalid: fails to use the accessories recommended in the instructions or fails to use the original spare parts.

1.6. Symbol Description

The following table describes the symbols used on this device or in this Manual.

	Caution! Check the documents provided		Consult the Instruction Manual
	Date of manufacture		Serial number
	Expiration date		Follow the Operating Instructions
	Type B application part		Don't throw it away in household garbage can at will
	Dangerous voltage		Caution, electric shock sign
	Warning sign: it is forbidden to cover the vent; keep the device ventilated and dissipate heat normally		Please lock the caster label during treatment

	Mute		Environmental protection service life of electronic products (20 years)

1.7. Descriptions of Network Security

[Operating environment and security software] The software used in this product is embedded; the software running carrier is STM32 series chips, and the operating system is ThreadX real-time operating system provided by Microsoft instead of PC software; no security software is provided.

[Software update] Users need to modify the data generated for various reasons and apply for maintenance. The maintenance scope only includes error data correction. The person in charge of the department filing application needs to verify and confirm the situation. After receiving the confirmed maintenance request, the maintenance engineer who is usually assigned by the software development team will analyze and put forward the modification program, analyze and evaluate the possible risks arising from software update, and propose risk control measures if necessary. The person in charge of the R&D department shall review the program to ensure the safety and correctness of the program, analyze and control the possible risks if necessary. Based on the influence of safety and effectiveness of the products involved in maintenance, determine the maintenance type and ensure that the software maintenance meets the requirements of laws and regulations. If necessary, simulate and verify the maintenance operation.

2. Device Description

2.1. Intended Use Environment

High-Frequency Oscillation Expectoration Machine is a type of treatment device for auxiliary expectoration, which can be used for auxiliary expectoration treatment in various departments of medical institutions such as hospitals and clinics.

2.2. Indications for Use

Therapy for airway clearance during external treatment of the thoracic cavity is suitable for patients with the poor discharge of respiratory secretions or incomplete lung inflation caused by mucus obstruction, to promote the discharge of patient sputum and airway clearance or to improve bronchial drainage. The atomized inhalation feature is used to atomize liquid drugs and deliver them to the respiratory tract for inhalation treatment.

2.3. Contraindications

⚠**Warning:**

Do not use the High-Frequency Oscillation Expectoration Machine if there is circumstance that prohibits to use it, otherwise it may cause death or serious injury.

Do not use this device in the following situations.

- The unstable head and/or neck are damaged.
- Active bleeding.

2.4. Relative contraindication

If any of the following situations exist, the patient's disease should be carefully evaluated before deciding to use the system:

- Intracranial pressure ＞20mmHg
- Recent spinal surgery or acute spinal cord injury
- Bronchopleural fistula
- Massive pleural effusion or pus accumulation
- Congestive heart failure with edema
- Patients with cardiovascular emergency

- Rib fracture, rib osteomyelitis or osteoporosis
- Surgical wounds or tissues have not healed; skin or skin flap transplantation in the chest has been performed recently
- Recent esophageal surgery
- Active or recent massive hemoptysis, pulmonary contusion, pulmonary embolism, pulmonary hemorrhage
- Uncontrolled airway inhalation hazard;
- Subcutaneous emphysema
- Chest burns, open wounds and skin infections
- Bronchospasm
- Uncontrolled hypertension
- Abdominal distention
- Recent epidural injection or spinal anesthesia
- Patients with recently implanted cardiac pacemakers intravenously or subcutaneously
- Lung tumor, pulmonary tuberculosis, lung abscess
- Coagulation disorders
- Pneumothorax and chest wall pain
- People who do not tolerate vibration
- Congestive heart failure with pulmonary edema

2.5. Applicable Population

Suitable for patients(including children and adults) with increased respiratory secretions due to multiple causes or lung expansion caused by mucus obstruction.

2.6. User Qualification

- Have received training in the use of the High-Frequency Oscillation Expectoration Machine approved by Ambulanc (Shenzhen) Tech. Co., Ltd.
- Personnels who have been authorized by doctors or chief physicians and have corresponding skills.

2.7. Structure Composition of the Device

[Product Composition]

The High-Frequency Oscillation Expectoration Machine is mainly composed of main unit, control system, wire control switch, air hose, inflatable airbag vest and vest jacket.

[Software]

See the following table for the softwares used with the product

Name of Software Component	Applicable Model	Released Version
P30 High-Frequency Oscillation Expectoration Machine Software	P30	V1
P20 High-Frequency Oscillation Expectoration Machine Software	P20	V1

2.8. Model and Specification

Product Model:

Product Model	Expectoration	Atomization
P30	√	√
P20	√	×

Note: "√" means standard configuration; "×" means no configuration.

2.9. Views of the Device

2.9.1. Equipment-trolley view

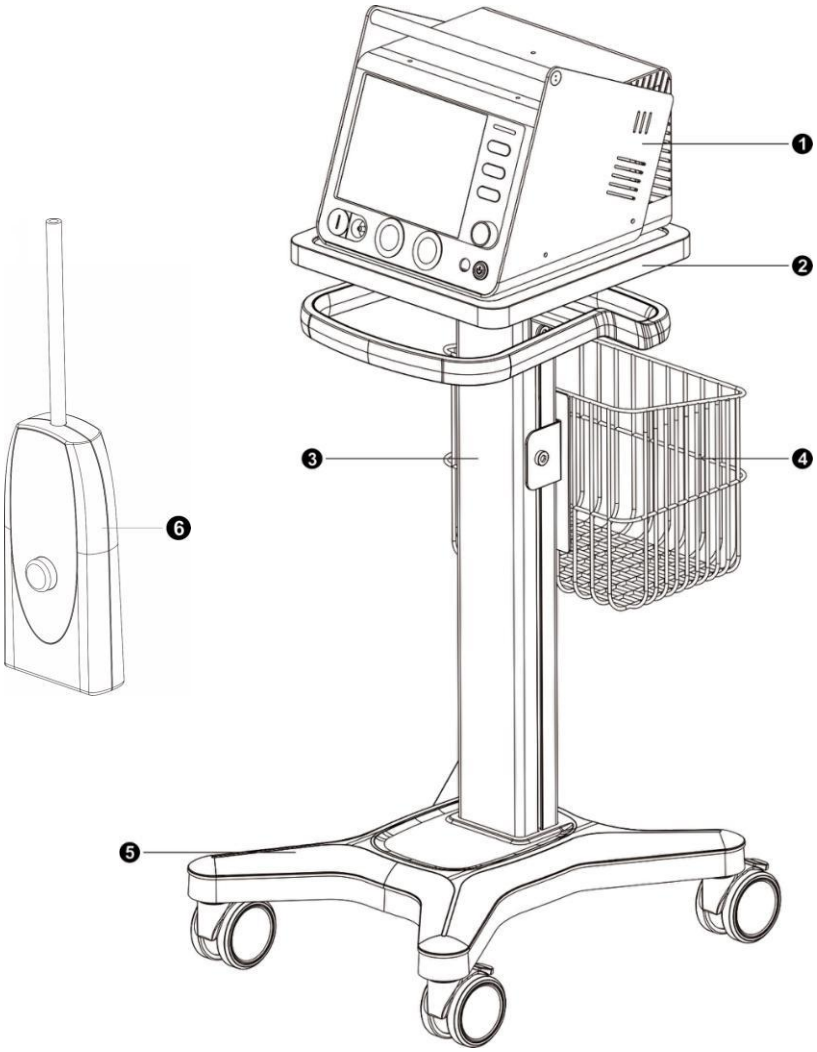


Fig. 1 Trolley view

Component	Description
1 Host machine	Host machine of vibration expectoration
2 Trolley table	To place host machine
3 Trolley	To support host machine
4 Storage basket	To store vest and air hose
5 Trolley casters	To control brake
6 wire control switch	emergency vibration expectoration stop function, interrupt or resume vibration expectoration

2.9.2. Device Front View

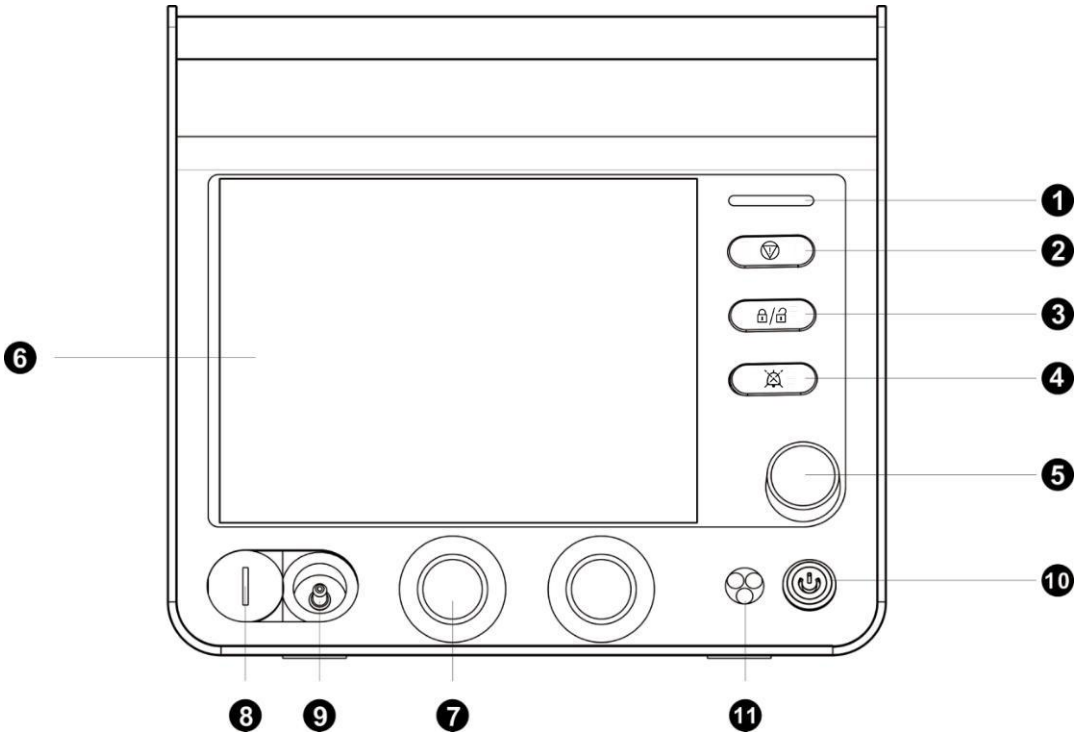


Fig. 2 Host machine (P30 front view)

Component	Description
1 Alarm light	It flashes yellow light when alarm occurs
2 Emergency stop button	This button is used to stop the vibration expectoration function in an emergency
3 Screen lock button	This button is used to lock the touch screen. Press it when the touch screen is activated, the touch screen will be forbidden to use,otherwise pressing this button willactivate the touch screen
4 Mute button	Turn on/turn off mute
5 Jog dial	This knob is used to operate the display interface; rotate the knob to adjust selected items: rotate forward to increase selected setting parameters, and rotate backward to decrease selected setting parameters
6 Touch display screen	To display the system interface. Please see Chapter 3 "Interface Description" for detail
7 Air hose interface	To connect air hose
8 Filter cover	Air filter cover of air inlet of atomizer (Not equipped for P20)

9 Atomizer interface	Compressed air output interface for connecting atomization components (Not equipped for P20)
10 On/Off button	Press this button to turn on/off machine.
11 Wire control interface	To connect wire control switch

2.9.3. Rear View of the Device

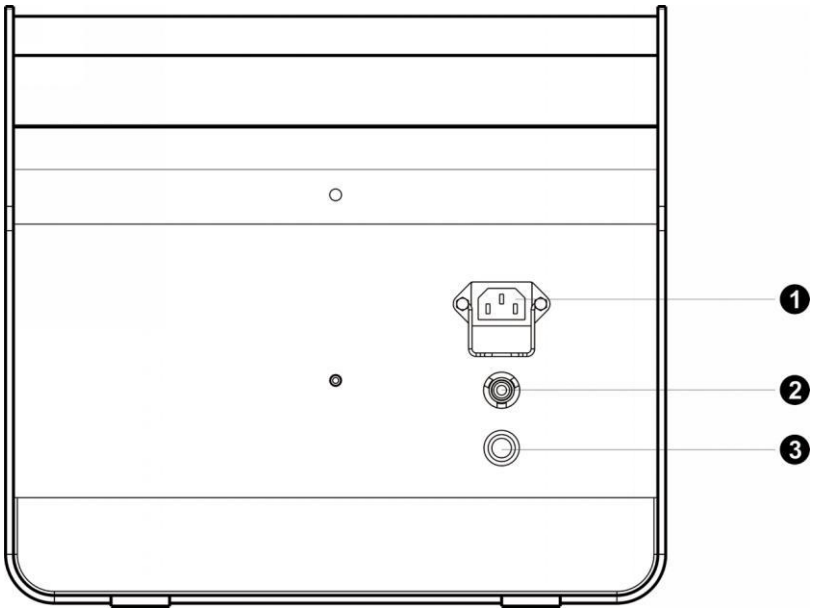
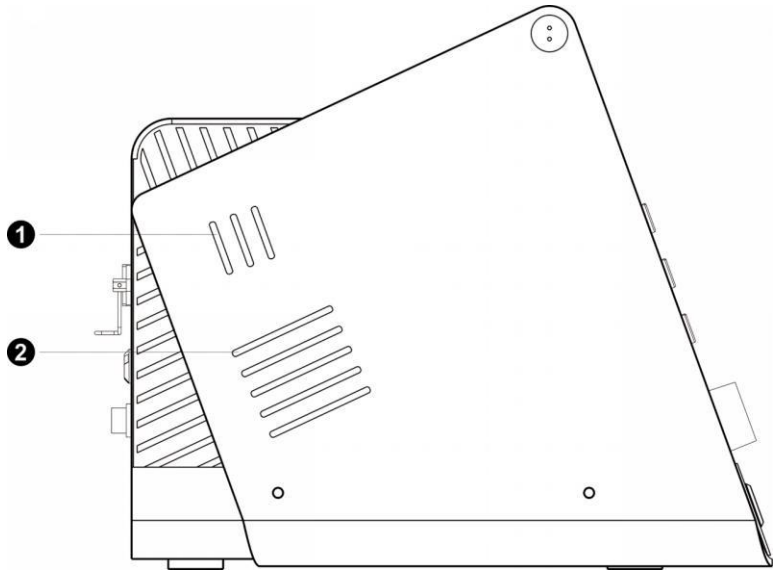


Figure 3 Host machine (rear view)

Component	Description
1 Power socket	Supply power
2 RS 232 serial port	For software maintenance upgrade/commissioning
3 Power cord interface of sputum aspirator	Provide auxiliary power for sputum aspirator (only applicable to Ambulanc sputum aspirator)

2.9.4. Left View of the Device



Component	Description
1 Heat emission hole	For fan cooling
2 Horn hole	Used for speakers to emit sound

Fig. 4 Host machine (left view)

2.9.5. Right View of the Device

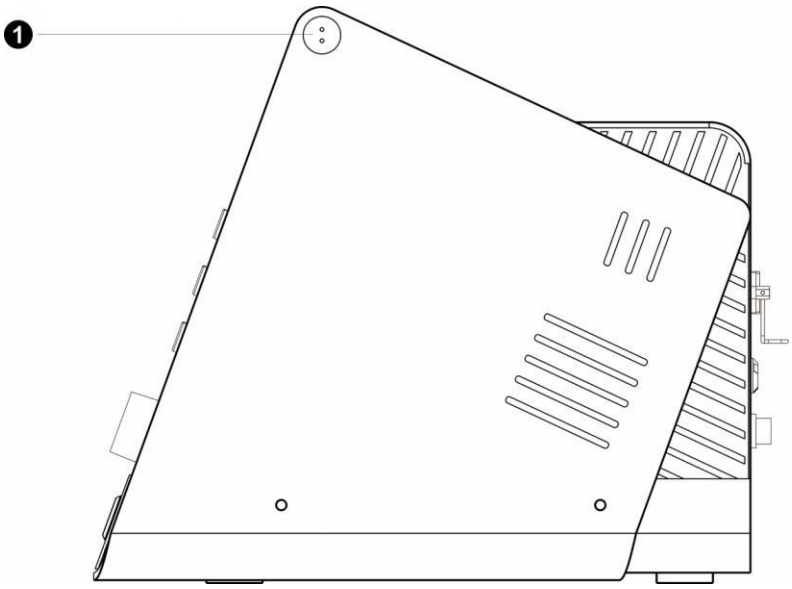


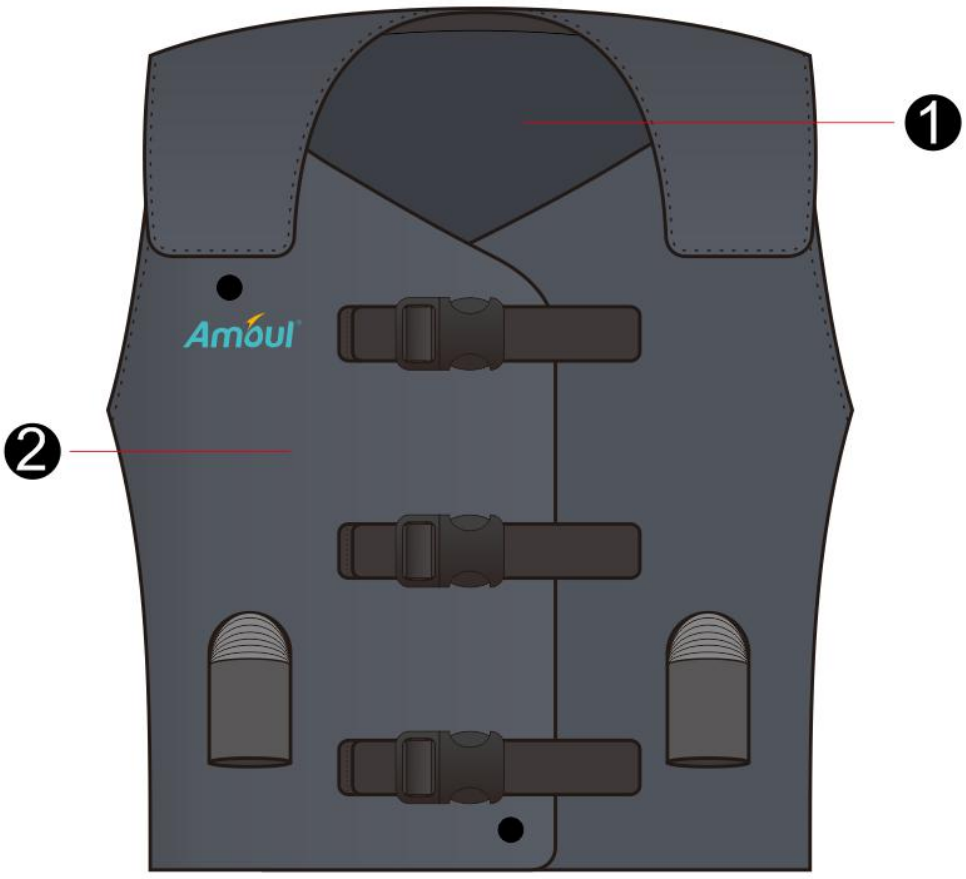
Figure 5 Host machine (right view)

Component	Description
1 Handle	Hand-held position

2.9.6. Inflatable airbag vest and vest jacket

Specifications of the inflatable airbag vest:

Reusable inflatable airbag vest			
Specifications	Size (mm)	Applicable Population	Treatment Site
Small	850	Child	Chest
Medium	1100	Adult	
Large	1280	Adult	



Component	Component

1 Vest jacket	**2 Airbag vest**

2.9.7. Atomization cup accessories

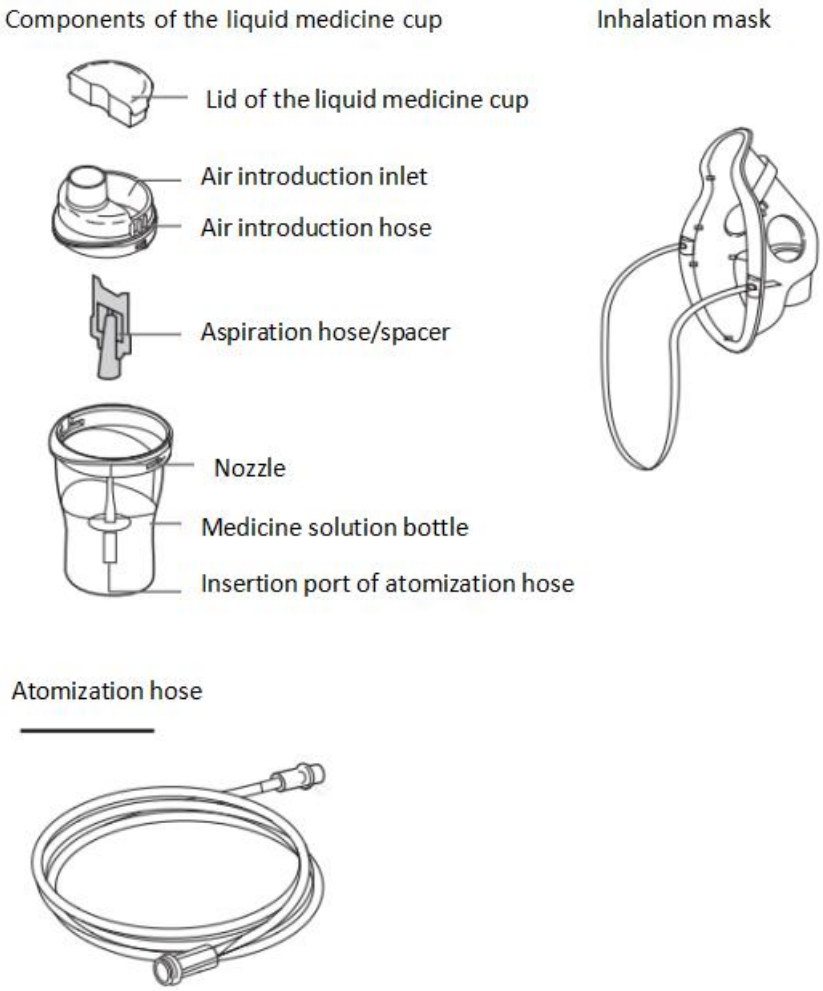


Fig. 6 Schematic diagram of atomization cup assembly

3. Interface Description

3.1. Main Interface Components

Fig.7 Main interface

Component	Description
1 System date and time	Display current date and time
2 Alarm information area	Display the current alarm mute status
3 Alarm mute icon	Display the current alarm mute status
4 Screen lock icon	Display the current screen lock status
5 Start/Stop	Turn on/off vibration expectoration
6 Pause	Pause/resume vibration expectoration
7 Operating mode	Vibration expectoration and atomized inhalation mode (P20 only offers vibration expectoration mode)
8 Parameter setting	After selected, the current parameter setting value can be adjusted through the jog dial or touch screen
9 Menu	It can call up menus such as Setting, Maintenance and About the Device

Component	Description
10 Record	It allows you to look up treatment data

3.2. Vibration Expectoration Interface

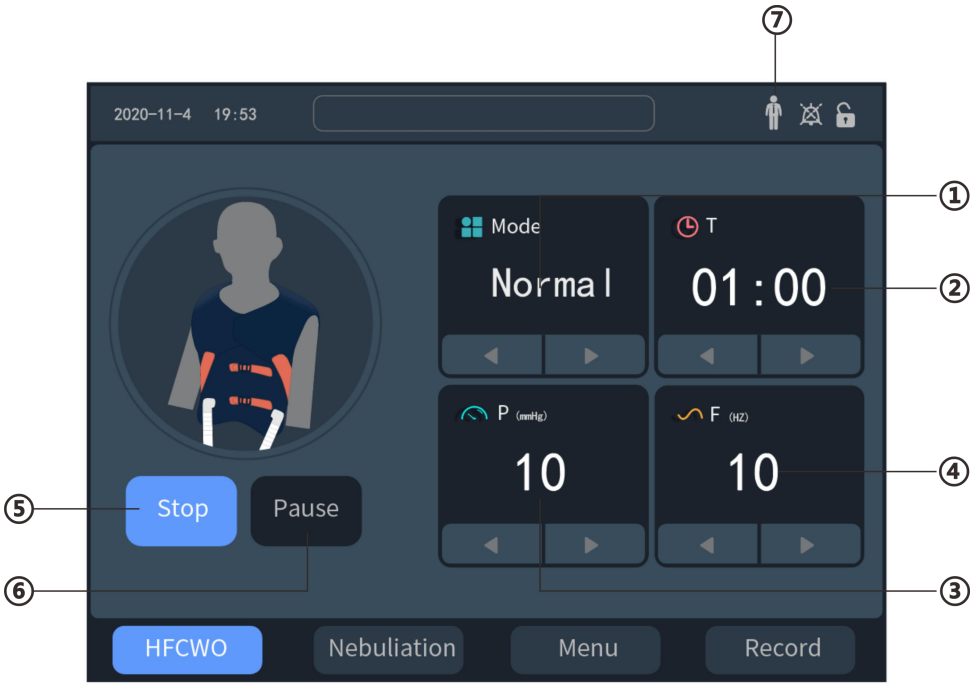


Fig. 8 Vibration expectoration interface

Component	Description
1 Mode setting	To set the vibration expectoration treatment mode, press or to switch
2 Time Settings	To set the treatment duration, press or adjust
3 Pressure setting	To set pressure, press or to adjust
4 Frequency setting	To set frequency, press or to adjust
5 Start/Stop	Turn on/off vibration expectoration
6 Pause	Pause/resume vibration expectoration
7 Patient type	Switching between children/adults (frequency limit ⩽ 15Hz in the case of children)

3.3. Atomized inhalation Interface

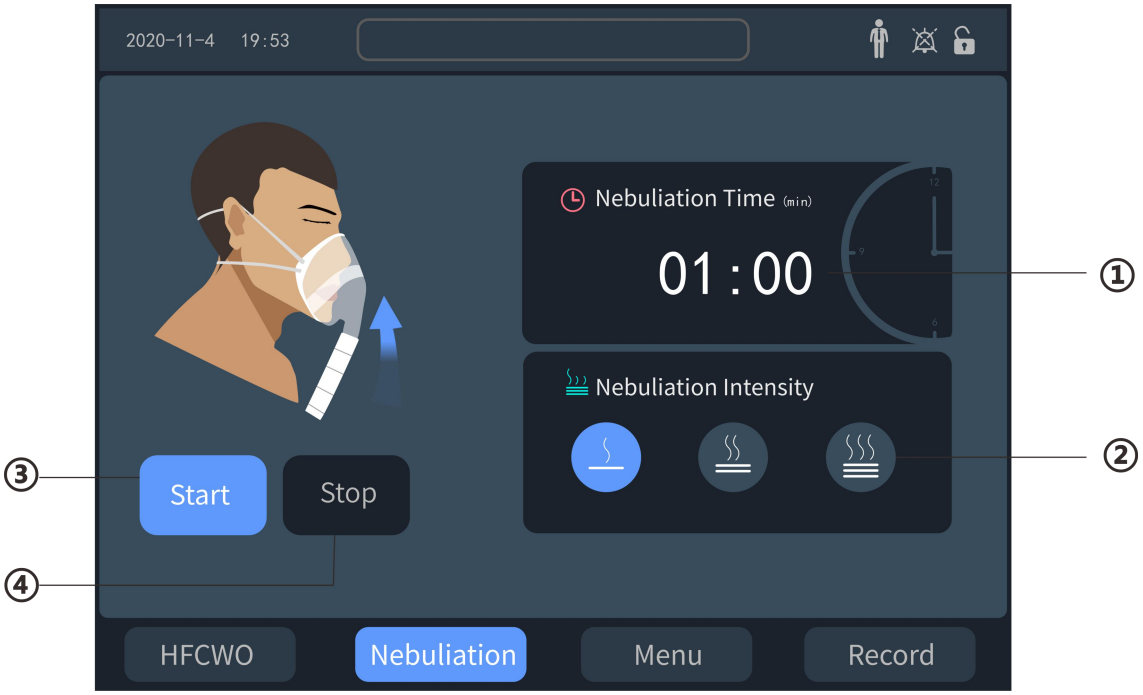


Fig. 9 Atomized inhalation interface

Component	Description
1 Atomization time	Record atomization treatment time
2 Atomization intensity	To adjust atomization intensity, and there are three levels of intensity
3 Start	Turn on atomization
4 Stop	Turn off atomization

3.4. System Menu Interface

3.4.1. Setting Interface

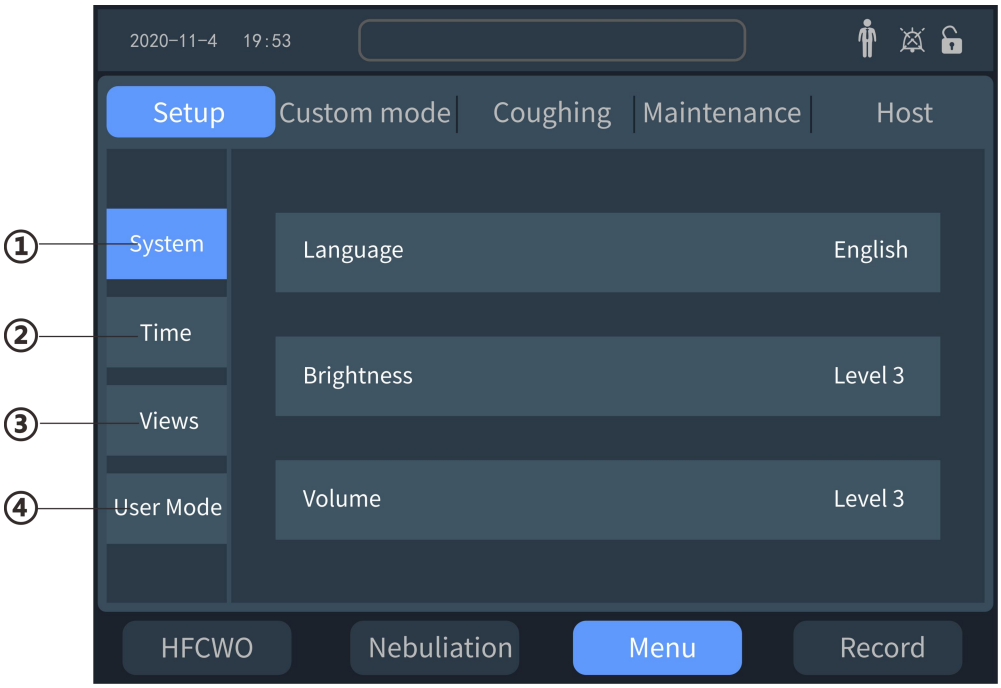


Fig. 10 System Menu-Setting Interface

Component	Description
1. System setting	Default language: Chinese; adjustable range: Chinese/English. Default brightness: level 2; adjustable range: 1~3 level. Default volume: level 2; adjustable range: 1~3 level.
2 Time Setting	Set the current date and time.
3 Views	Default style: day; adjustable range: day and night.
4 User mode	Set patient type: adults, children

3.4.2. Custom Mode Interface

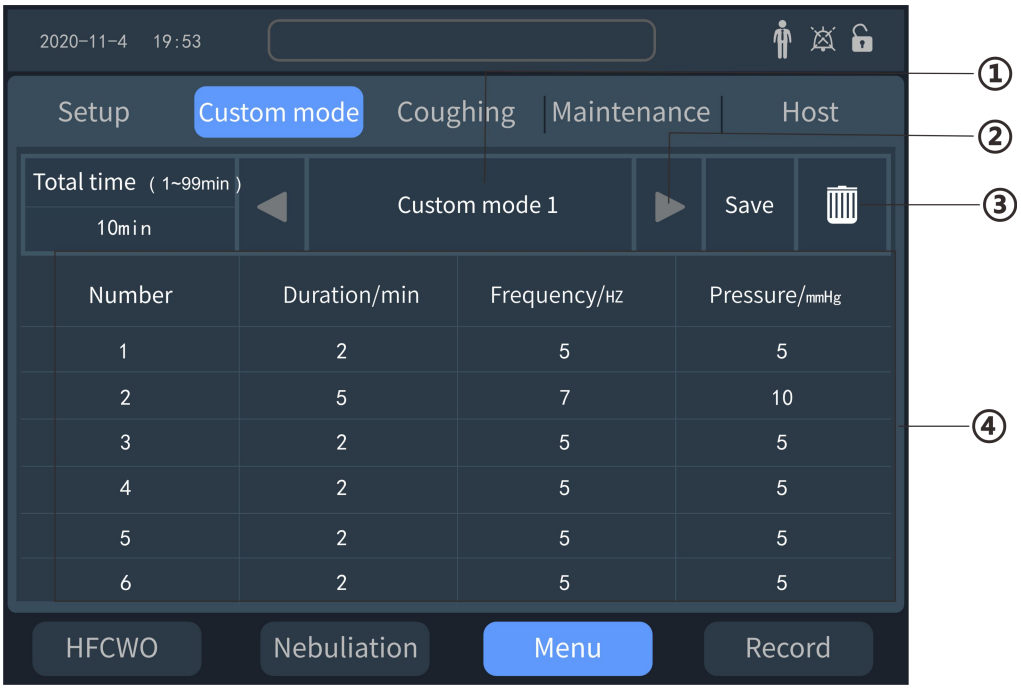


Fig. 11 System Menu - Custom Interface

Component	Description
1 Custom Mode	Five modes are available, i.e. custom mode 1 - custom mode 5.
2 Segment parameter setting	Custom Mode1~Custom Mode5 can be set
3 Save	Save setting parameters
4 Delete	When selected, prompt whether to delete this information

3.4.3. Cough Function Interface

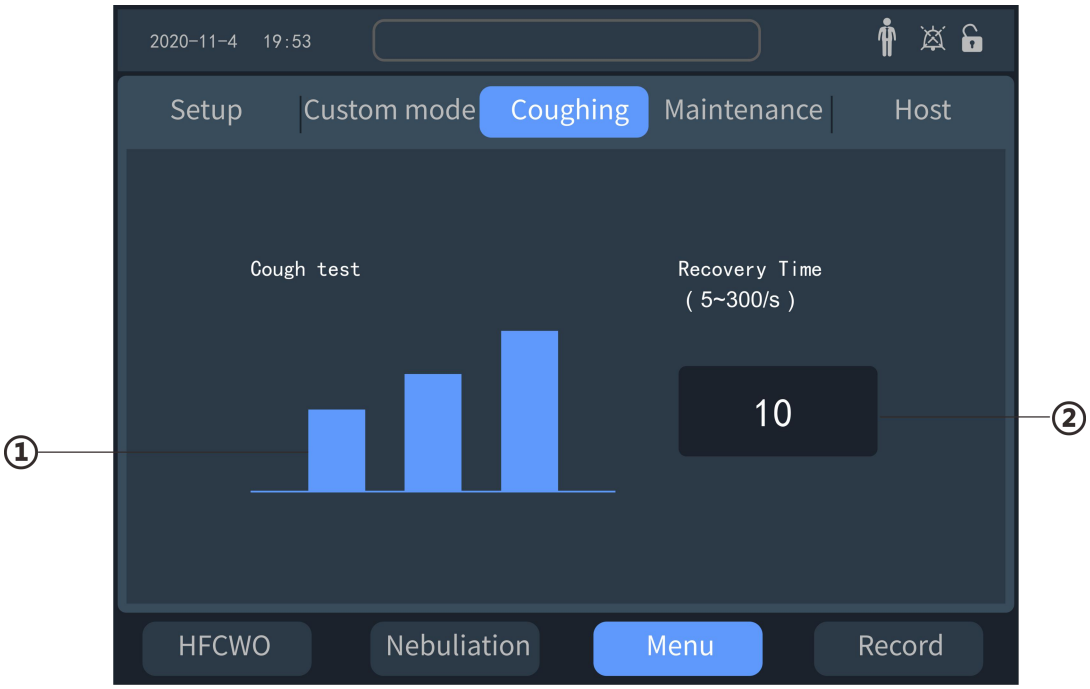


Fig. 12 System menu-Cough function interface

Component	Description
1 Cough test	By default, this function is turned off. When it is turned on, the sensitivity can be adjusted up to level 3.
2 Recovery Time	Default time: 10s; adjustable range: 5~300s.

3.4.4. Maintenance Interface

Click the "Maintenance" button in the system menu interface to enter the maintenance interface, which is used for commissioning device in the background. It has been encrypted and requires password for login. After login, self-inspection and calibration can be performed.

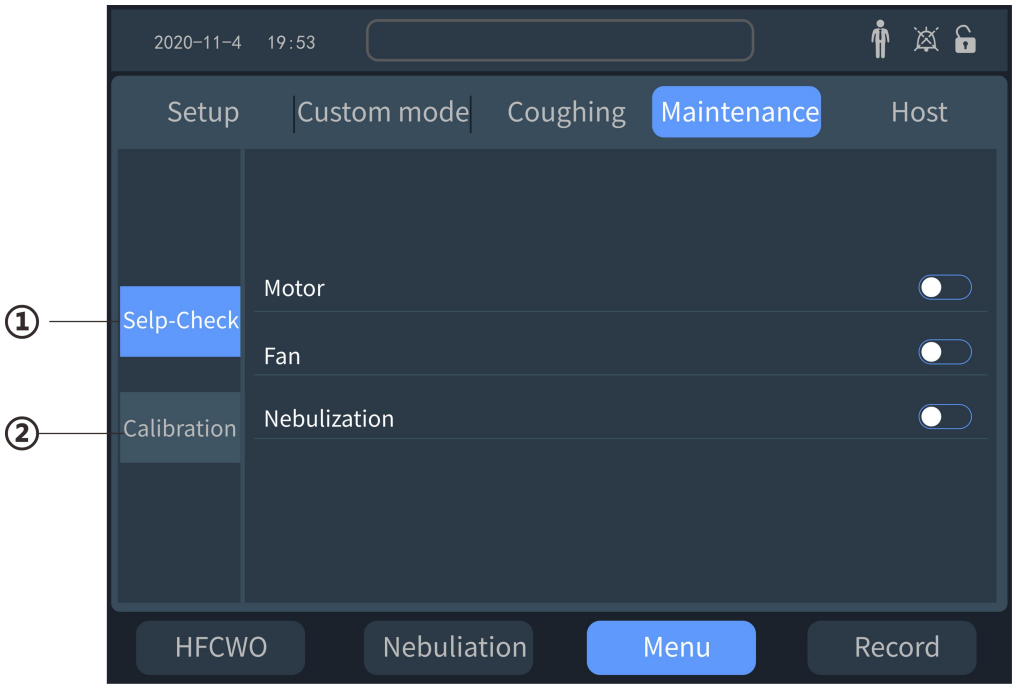


Fig. 13 System menu-Maintenance Interface

Component	Description
1 Self-Check	It can test motor, fan and atomization functions
2 Calibration	It can calibrate pressure sensor

3.4.5. Device Interface

Click the "Host" button in the Menu interface to view the device name, model and software version.

Fig. 14 System menu-Device interface

3.5. Treatment Record Interface

Click the "Record" button in the Main interface to enter the treatment data query interface (as shown below).

Press ◀ or ▶ to flip up and down the treatment data and store 60 data. When the records are full, the new records will overwrite the oldest records.

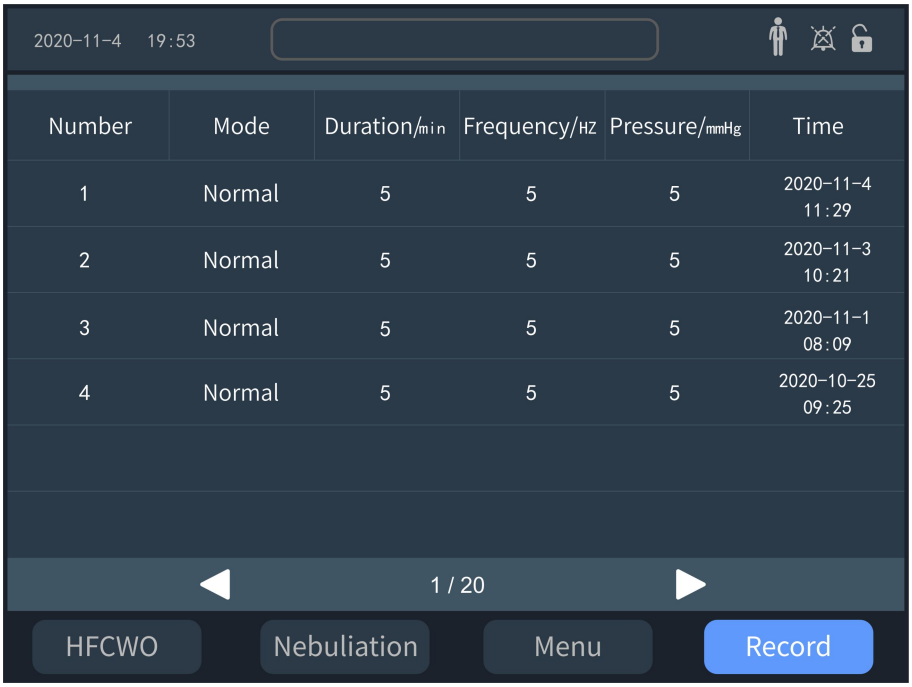


Fig. 15 Treatment record interface

3.6. Prompt message

The current prompts are displayed in the message bar at the top of the main screen (as shown below).

Fig. 16 The prompt message screen

The prompt function is described in detail as follows.

Content of prompts	LCD	LED	Voice prompts
The host machine is not connected to the expectoration vest	The message bar area of the main interface changes to yellow	The yellow light is constantly on	With a beep; the pulse interval is 20s

Two minutes after the prompt appears, if the machine is not under operation, the prompt will be automatically removed.

4. Installation and Inspection

4.1. Installation Statement

Warning:

- The software copyright of this High-Frequency Oscillation Expectoration Machine belongs to our company. Without permission, no organization or individual may commit any infringement such as tampering, copying or exchanging the software by any means or forms.
- All analog and digital devices connected to this High-Frequency Oscillation Expectoration Machine must be certified to the specified GB standard (e.g., GB 9706.1 safety standard of medical electrical equipment), and all equipment should be connected in accordance with the requirements of the valid version of the GB 9706.15 system standard. The personnel responsible for connecting the additional equipment to the input and output signal ports are liable for whether the system meets the GB 9706.15 standard. If in doubt, please contact the company.
- When the High-Frequency Oscillation Expectoration Machine is successfully connected with other electrical equipment and has a combination of specific functions, if it is impossible to determine whether the combination is dangerous based on the specifications of each equipment (for example, the risk of electric shock caused by the accumulation of leakage current), please contact the relevant experts of the company or hospital to ensure that the safety of all equipment in the combination will not be damaged.
- The use of accessories beyond the specifications in the Manual may increase the electromagnetic emission or reduce the electromagnetic immunity of the device. Replacement parts and supplies provided by Ambulanc (Shenzhen) Tech. Co., Ltd. or its authorized representatives must be used.

4.2. Packed Items

The High-Frequency Oscillation Expectoration Machine is packed in a single box. Please see "8 Product Configuration" for packing items.

4.2.1. Open-box inspection

The High-Frequency Oscillation Expectoration Machine has passed strict

inspection before leaving the factory. In order to avoid impact during transportation, it is packed rigorously. Please carefully check the packing box after the device arrives and before unpacking. If any damage is found, please contact the carrier immediately.

After opening the packing box, please immediately verify that all the items listed on the packing list are included. Check whether the equipment has any mechanical damage and whether the items are complete. If you have any doubt, please contact the Company.

Caution

- Please keep the packing boxes and packaging materials for future transportation or storage.

⚠ Warning:

Packaging materials may pose pollution to the environment. When disposing packaging materials, the relevant local laws and regulations or the waste disposal system of hospitals must be followed. Please keep the packaging materials out of the reach of children.

The device may be contaminated by microorganisms during storage, transportation and usage. Please confirm whether the packaging is intact before use, especially the disposable accessories. If any damage is found, please do not use them.

4.3. Function Test

4.3.1. Vibration Expectoration Function

Electric shock hazard:

If the High-Frequency Oscillation Expectoration Machine is wet, do not plug it into the power supply or use it. Otherwise, personal injury or device damage may occur.

1. Ensure that the High-Frequency Oscillation Expectoration Machine is not wet.
2. Plug the power cord into the rear socket of the High-Frequency Oscillation Expectoration Machine;

⚠ Caution:

Please use a well-grounded power socket, otherwise the device may be damaged

3. Plug the power cord into a properly grounded outlet.

⚠

Caution:

Do not start the High-Frequency Oscillation Expectoration Machine before it is connected to the airbag vest, otherwise it may damage the device.

4. Connect the air hose to the air hose interface of the High-Frequency Oscillation Expectoration Machine.
5. Gently rotate the air hose to connect the air hose to the proper position of the air hose connection.
6. Try on the airbag vest.

- Put on the airbag vest and make sure that the buckle is placed in front of your body.
- Connect the buckle belt.
- Adjust the shoulder strap to control the length of airbag vest so that the bottom edge of the vest is above the hip bone.
- Adjust the pull belt at the buckle in the front of vest to make the airbag vest cling to the body, and it should be comfortable for the patient regarding the tightness.
- If there is extra strap part below the buckle, please fold them and make sure that the airbag vest is completely suitable.

Tips:

To improve the comfort level during use, it is recommended that the patient should wear a single-layer cotton-padded coat under the airbag vest.

7. Connect the air hose to the interface of the airbag vest.
8. Gently rotate the air hose to connect the air hose to the proper position of airbag vest interface.
9. Please insert the wire control switch into the wire control interface of the High-Frequency Oscillation Expectoration Machine, and use the optional wire control switch instead of the "Start/Stop" button.
10. Please check the status of the keys before each use to avoid key failures.

4.3.2. Atomization function

1. Remove the liquid medicine cup lid from the atomization cup, the air introduction hose, the aspiration hose, and the spacer.
2. Fill the liquid medicine cup with the specified amount of liquid medicine.

3. Put the lid of the liquid medicine cup, air introduction hose, suction hose and spacer back in place.
4. Install the mask.
5. Connect both ends of the atomizer’s hose to the bottom of the liquid medicine cup and the connector of the atomizer’s main unit.
6. On the atomization suction interface, press the "On" button, the atomization function will be turned on, and spraying will start at the nozzle.
7. Press the "Off" button, the device will end the atomization and the time will be reset to zero.

5. Operation

Please make sure that the High-Frequency Oscillation Expectoration Machine is connected correctly; connect the power cord to the host machine and press the On/Off button of the host machine, so that the switch indicator is on and the screen of device is on. Thus the device enter the power-on state with Main interface displayed.

5.1. Vibration Expectoration Operation

1. The last used treatment mode, time, pressure and frequency settings are displayed on the screen.
2. Confirm the parameters on the screen. If they are consistent with your treatment prescription, please continue to perform step 3; otherwise, please adjust them to the matching treatment prescription and set the parameters as follows.

- **Mode selection**

There are 4 treatment modes "Normal", "Cycle", "Ramp" and "Custom” available, press ◀ or ▶ in the mode box to select;

If there is a custom mode, you should be able to choose under the mode. For the custom mode setting, see Section 5.3 "Custom Mode Parameter Setting".

- **Time setting**

The treatment duration is adjustable from 1 to 60min (adjusting the settings in the time-box)◀ or ▶sets the corresponding treatment duration.

- **Pressure setting**

The treatment pressure can be adjusted between 3 - 30 mmHg, and the corresponding treatment pressure can be set by press ◀ or ▶ in the Pressure box.

- **Frequency setting**

Normal mode: 1 - 20Hz, default 5Hz;

Cycle mode: 5 to 11Hz (low), 7 to 13Hz (medium), 9 to 15Hz (high).

Gradient mode: 5-7-9-11Hz (low), 7-9-11-13Hz (medium), 9-11-13-15Hz (high).

Tips:

all the above parameters can be set by adjusting the settings in the frequency box ◀ or ▶ setting the corresponding treatment frequency. It is suggested to increase them from low to high, and adjust based on the patient's tolerance.

3. Press the "On" button, and the airbag vest will inflate. After the pressure is stable, the machine will automatically enter the vibration mode, and the time will start to count backwards. At the time, the button displays "Off".
4. If it is necessary to pause during treatment, press the "Pause" button, and the button will display "Resume".

   When the machine stops, the airbag vest will deflate. To continue treatment, press the "Resume" button.
5. If the patient feels uncomfortable during treatment and wants to stop urgently, press the "Emergency Stop" button on the front of housing or press the wire control switch once.

   If you need to continue treatment, press the "On" button on the screen.
6. To end the treatment before the end of the course of treatment, press the "Off" button. The airbag vest is deflated, and the treatment time is restored to the default value.
7. End of treatment:
   - Rhythm animation stops
   - Air bag vest is deflated
   - Unplug the power of host machine
   - Remove the air hose
   - Remove the expectoration vest

   Tips:

   Do not press the "Emergency Stop" button in non-emergency situations.

5.2. Atomization Operation

1. Install the atomization assembly by following the steps in Section 4.3.2 and connect it with the host machine.

2. Press the "atomized inhalation" button in the Main interface to enter the atomization operation interface.
3. Press the "On" button, the atomization function will be started, spraying will be started at the nozzle, and the atomization will start timing, with the longest continuous operation duration of 30 mins.
4. Touch the atomization intensity icon to adjust the atomization rate.
5. To turn off the atomization function, press the "Off" button, and the atomization will be ended and the time will return to zero.

Tips:

- The atomization cup accessory is a single-use product.
- The atomization cup used is the micro-dosing type spray set (model C28-NSET9) produced by Omron Dalian Co. Ltd. The use of other unsuitable atomization cups may cause inaccurate atomization parameter readings and cause harm to the patient.
- For specifications of atomization parameters, please refer to "10.5 Technical Data".

5.3. Custom Mode Parameter Setting

1. In the Main interface, press the "Menu" button to enter the System Menu interface.
2. Press the "Custom Mode" button to enter the Custom Mode Setting interface.
3. The screen displays the current custom mode. To switch modes, press ◀ or

▶select from Custom Mode 1 - Custom Mode 5.

4. Select the parameters you need to set through jog dial or touch screen; adjust the jog dial setting parameter values, and press the jog dial again to confirm.
   - Segment length: adjustable from 1 to 60min, but the total length of all segments will not exceed 60min.
   - Segment frequency: adjustable range: 1 - 20Hz;
   - Segment pressure: the adjustable range is 3~30mmHg;
5. Repeat step 4 to set the desire parameter values.
6. Press the "Save" button, and the set parameters will take effect.
7. to delete a segment parameter, you can select ○ ○and then tap .

5.4. Cough Function Setting

1. Press the "Menu" button in the Main interface to enter the System Menu interface.
2. Press the "Coughing" button to enter the Cough Function Setting interface.
3. The function is turned off by default, and the sensitivity of cough self-inspection can be adjusted by touching and selecting the sensitivity indicator bar: low, medium and high.
4. Cough pause time is 10s by default, with adjustable range: 5~300s.

Caution:

- After the first cough is paused, the treatment can be resumed automatically, and it needs to be turned on manually after being paused again.
- The cough detection sensitivity should be properly adjusted according to the actual situation of patients, so as not to affect the use for patients.

•

6. Fault Analysis and Troubleshooting

Warning:

⚠ High-Frequency Oscillation Expectoration Machine can only be maintained by authorized personnel, otherwise personal injury or equipment damage may be caused.

If the failure cannot be troubleshot immediately, please contact the manufacturer Ambulanc (Shenzhen) Tech. Co., Ltd. or the distributor authorized by Ambulanc (Shenzhen) Tech. Co., Ltd. Do not continue to use the machine to avoid unnecessary injuries.

Fault	Fault Analysis and Troubleshooting
Machine can not booted	Confirm whether the power cord is firmly plugged into the power interface of the device and the proper power outlet, and unplug the power cord and reconnect it if necessary.
There is no air pulse in the airbag vest	Make sure that the air hose is firmly connected to the airbag vest and the High-Frequency Oscillation Expectoration Machine.
When atomization is turned on, there is no spray or a small amount of spray	1）Check whether the atomization cup assembly is installed correctly; 2）Check whether the amount of medicine solution in atomization cup is too much or too little; 3）Check whether the nozzle of the atomization cup is blocked. If it is blocked, please clean the nozzle. If there is no improvement after cleaning, please replace the atomization cup assembly. 4）Ensure that the inclination of the atomization cup is within 45°. 5）Ensure that the atomization pipe is not bent or damaged. 6）Check whether the filter is dirty.

7. Maintenance and Service

The High-Frequency Oscillation Expectoration Machine needs correct maintenance and service to ensure that the device can work normally for a long period of time. In addition to providing one-year free warranty service, the Company also provides maintenance and services for users for a long time.

In order to maintain the device effectively, please follow all operation specifications in the Manual.

7.1. Routine Examination

After each repair, remember to conduct a safety inspection, and the equipment must be inspected and repaired regularly.

7.1.1. Vibration Expectoration

- Before use, please check the vibration expectoration according to the "Installation and Inspection" procedure;
- The airbag vest should be worn by clinging to the patient's body, with the tightness not affecting the patient's deep breathing when the vest is not inflated;
- If the patient feels uncomfortable during use, stop use immediately and report to the medical staff;
- Patients should not use it within 1 hour after meals;
- Check if the patient needs to be cleaned for mucus in respiratory tract every 5 minutes during machine operation.

7.1.2. Atomization

- Before use, please check the atomizer according to the "Installation and Inspection" procedure and connect the atomization components;
- During use, please do not tilt the atomizer above 45° and avoid violent shaking. If the patient feel any abnormality, stop use it immediately and report to the medical staff;
- Please replace the filter cotton with a new one when the filter is dirty or discolored, or replace it every 60 days.

7.2. Device Maintenance

7.2.1. Replacement of Air Filter

The air filter is installed in the atomization interface. Slide the filter cover toward left when it needs to be replaced, and slide the filter cover toward right after replacing the filter.

7.2.2. Replacement of Power Cord

The power cord is used to supply power to the main unit and should be checked whether it is damaged or the plug is loose from time to time and if problems such as safety issues occur you should contact the customer service of Ambulanc (Shenzhen) Tech. Co., Ltd.for replacement.

7.2.3. Replacement of Airbag Vest

When the airbag vest is worn directly contacted with the patient, it should be kept clean to prevent cross-infection. In case the vest is damaged or leaked, it should be replaced in time. Or replace it once every 6 months of use.

7.3. Cleaning and Disinfection of Pproducts

The High-Frequency Oscillation Expectoration Machine and its accessories must be cleaned after each use, so that they are in good stand-by condition, to avoid cross-infection. After cleaning and disinfection each time, please conduct "Function Check" as in Section 4.3.

7.3.1. Cleaning

- Host machine:

1. Please turn off power and disconnect socket before cleaning;
2. Apply common water-soluble disinfectant to wet soft rags for simple wiping and cleaning; do not dip in excessive cleaning solution, and make sure that the wiping parts are dry before power is turned on;
3. Be sure to prevent liquid from entering the device when cleaning it.

Caution:

It is prohibited to wipe the machine with corrosive liquid;

Do not flush the machine.

- Air hose:

1. Please turn off power and disconnect socket before cleaning;
2. Wipe the surface of the hose with a soft and clean lint-free cloth wet in mild soapy water or non-corrosive diluted cleaning liquid; clean it with a clean and dry soft cloth. Do not clean with worn materials to avoid scratching the hose.

7.3.2. Disinfection/Sterilization

- Host machine:

1. Wipe and disinfect the surface with alcohol disinfectants (containing ethanol, isopropanol, n-propanol, or compound preparation of two components).

- Airbag vest:

1. Wipe and disinfect the surface with alcohol disinfectants (containing ethanol, isopropanol, n-propanol, or compound preparation of two components).
2. Soak in a medium to high-efficiency disinfectant (alcohol or isopropanol) solution; please note that the solution does not touch the vest interface to prevent the solution from entering the vest interface.

- Air hose:

1. Wipe the surface of the hose with a soft and clean lint-free cloth wet in mild soapy water or non-corrosive diluted cleaning liquid; clean it with a clean and dry soft cloth.
2. Soak in a medium to high-efficiency disinfectant (alcohol or isopropanol) solution.

Caution:

- When disinfecting the whole machine, it is forbidden to fumigate with peracetic acid and formaldehyde;
- The configuration and use of disinfectants should be carried out according to the instructions of the manufacturer;
- After the airbag in the airbag vest is removed, the jacket can be washed by machine.

8. Product Configuration

8.1. Standard Configuration of Host Machine and Accessories

Serial number	Name	Quantity (unit)	Service Life	Remark
1.	Host machine:	1（PCS）	/	
2.	Power cord	1（PCS）	/	
3.	Large size airbag vest	1（PCS）	6 months	
4.	Medium size airbag vest	1（PCS）	6 months	
5.	Small size airbag vest	1（PCS）	6 months	
6.	Large size vest jacket	2（PCS）	/	
7.	Medium size vest jacket	2（PCS）	/	
8.	Small size vest jacket	2（PCS）	/	
9.	Air hose	1 pair	/	
10.	Wire control switch	1（PCS）	/	
11.	Atomization components	1（PCS）	/	P30 standard configuration
12.	Air filter	5（PCS）	60 days/pcs	P30 standard configuration
13.	Instruction Manual	1（PCS）	/	

8.2. Optional accessories

Serial number	Name	Quantity (unit)	Service Life	Remark
1.	Large size airbag		6 months	

	vest			
2.	Medium size airbag vest		6 months	
3.	Small size airbag vest		6 months	
4.	Large size vest jacket		/	
5.	Medium size vest jacket		/	
6.	Small size vest jacket		/	
7.	Atomization components		/	For P30 only
8.	Air filter		60 days/pcs	For P30 only
9.	Trolley	1（PCS）	/	

Remarks:

1. The service life refers to the life of product under normal operation conditions, and device failure caused by abnormal conditions such as man-made damage and improper use is not included;
2. The service life is only used as a reference for product life, not as a standard warranty period;
3. Please refer to the "Maintenance Service" term for product standard warranty period.

Caution:

1. Please refer to Section 7.2 "Equipment Maintenance" for replacement of accessories.
2. In case of accessories, parts and materials need to be replaced, please contact the customer service center to arrange professionals to do so, and do not replace them by yourself.
3. Replacement or usage of other non-matching accessories, components and materials by user himself/herself may cause unexpected consequences.
4. To continue to use products or accessories beyond service life, it is necessary to

obtain the joint evaluation and testing approval of the biomedical engineers in hospitals or equipment maintenance management personnel and the after-sales service personnel of **Ambulanc (Shenzhen) Tech. Co., Ltd.**, and the products or accessories shall be tested and evaluated regularly during their subsequent use.

9. Disposal of Products

9.1. Storage

If the High-Frequency Oscillation Expectoration Machine has not been used for a long period of time, the following measures are recommended:

1. Clean and disinfect (refer to Section 7.3 "Product Cleaning and Disinfection").
2. Store in a dry place.

Important:

The stored device must comply with the requirements of maintenance period, and shall not be used directly after taken out from the warehouse.

9.2. Device Disposal

3. If the device has expired or its service life has expired, please dispose of it properly.
4. Please send the waste device to a qualified waste electrical appliance processor for disposal

Warning:

In order to avoid polluting or infecting personnel, environment or other device, the device and its accessories that have reached the service life must be disposed according to the relevant local regulations or hospital regulations.

10. Technical Specifications

10.1. Medical Device Management Class

Medical Device Management Class	
Class	Class II medical device

10.2. Physical specifications

Host machine:	
Assembly size	Length: 361mm, Width: 338mm, Height: 320mm
Net weight	15kg
Display screen	
Type	Color screen TFT
Size	10.4 in.
Resolution	1024x768 pixels
Functions	With touch screen
Trolley	
Assembly size	Length: 686mm, Width: 504mm, Height: 1030mm
Net weight	13.5kg

10.3. Environmental Specifications:

Working environment	
Temperature range	5℃～40°C
Humidity range	RH≤80%, non-condensing
Air pressure	75kPa～106kPa
Storage and transportation environment	
Temperature range	-20℃～55°C
Humidity range	RH≤93%, non-condensing
Air pressure	75kPa～106kPa

10.4. Power Supply Specifications

External AC power supply	
Input voltage	220V
Input frequency	50/60Hz
Input current	10A
Host machine:	
Host input	DC24V

10.5. Technical Parameters

Vibration Expectoration	
Operating pressure	The adjustable range is 3-30mmHg, the stepping is 1mmHg, and the error ≤±1mmHg
Operating frequency	1-20Hz continuously adjustable; stepping: 1 Hz; error ≤±1Hz
Time adjustment	1~60min adjustable, 1-min stepping, error ±2%
Operating mode	Regular mode, cycle mode, gradient mode and custom mode
Operating noise	Normal operation ≤65dB(A)
Atomization	
Gas flow rate	≥ 3 L/min
Atomization cup capacity	6 ml
Atomization level	The atomization is divided into three levels, weak: 5L/min, medium: 7L/min, strong: 9L/min, tolerance ±1L/min.
Pressure range	Normal operating pressure: 1~80kPa Normal operating pressure: 80~200kPa
Atomization rate	≥ 0.16 mL/min
Residual	≤ 0.7 mL

liquid volume	
Operating noise	≤ 50 dB (A)
Operating hours	30min ± 2%
Equivalent volume particle size distribution of fog particles	The proportion of equivalent volume particle size distribution in the range of 1.0 μm-5.0μm is not less than 70%. The median particle size is 3μm ± 25%

11. EMC

Electromagnetic compatibility

 Caution:

- P30/P20 High-Frequency Oscillation Expectoration Machine meets the relevant requirements of electromagnetic compatibility in the YY0505 standard.
- The user should install and use the machine according to the electromagnetic compatibility information provided by the documents that come with the machine.
- Portable and mobile RF communication equipment may affect the performance of the P30/P20 High-Frequency Oscillation Expectoration Machine, avoid strong electromagnetic interference such as being close to mobile phones, and microwave ovens when using;
- The guidelines and the manufacturer's statement are detailed in the annex.

 Warning:

- The P30/P20 High-Frequency Oscillation Expectoration Machine should not be used close to or stacked with other devices, and if it must be used in such conditions, it should be observed to verify that it will function properly in the configuration in which it is used.
- This device is not intended for use in a residential environment where radio reception is not adequately protected.
- Except for cables sold by the manufacturer of the P30/P20 High-Frequency Oscillation Expectoration Machine as spare parts for internal components, the use of accessories and cables other than those specified may lead to an increased emission or reduced immunity of the P30/P20 High-Frequency Oscillation Expectoration Machine.

Cable Form

Serial number	Name	Cable length (m)	Shielded or not	Remark

Serial number	Name	Cable length (m)	Shielded or not	Remark
1	POWER CORD	1	No	/

11.1. Magnetic Radiation Statement

The guidelines and the manufacturer's statement – Electromagnetic emission		
P30/P20 High-Frequency Oscillation Expectoration Machine is expected to be used in the following specified electromagnetic environment and the purchaser or		
Emission test	**Conformity**	**Electromagnetic Environment - Guidelines**
GB4824 RF Emission	Group 1	The P30/P20 High-Frequency Oscillation Expectoration Machine uses RF energy only for its internal functions. As a result, its RF emission is low and the likelihood of interference with nearby electronics is small.
GB4824 RF Emission	Glass B	The P30/P20 High-Frequency Oscillation Expectoration Machine is suitable for use in residential low voltage supply grids where domestic equipment and facilities are directly connected to.
Gb17625.1 Harmonic Emission	Not applicable	
GB17625.2 Voltage fluctuation / flicker emission	Not applicable	

11.2. Electromagnetic Immunity Statement - Requirements for All Equipment and Systems

Guidelines and Manufacturer's Statement - Electromagnetic Immunity

P30/P20 High-Frequency Oscillation Expectoration Machine is expected to be used in the following specified electromagnetic environment and the purchaser or user of the P30/P20 High-Frequency Oscillation Expectoration Machine should ensure			
Immunity Test	IEC 60601 test	Coincidence Level	Electromagnetic
Electrostatic discharge (ESD) GB/T 17626.2	±6 kV contact discharge ±8 kV air discharge	±6 kV contact discharge ±8 kV air discharge	The floor material should be wood, concrete or tile, and if the floor is covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient burst GB/T 17626.4	±2kV to power cord ±1kV to input/output cable	±2kV to power cord	The grid power supply should have qualities for use in a typical commercial or hospital environment.
Surge GB/T 17626.5	±1 kV symmetrical voltage ±2 kV common-mode voltage	±1 kV symmetrical voltage ±2 kV common-mode voltage	The grid power supply should have qualities for use in a typical commercial or hospital environment.
Voltage sage, short interruptions and voltage variations on the power input cable GB/T 17626.11	<5 % UT for 0.5 weeks (on UT, >95% of sag) 40 % UT for 5 weeks (on UT, 60% of sag) 70 % UT for 25 weeks (on UT, 30% of sag) <5 % UT for 5s (on UT, >95% of sag)	<5 % UT for 0.5 weeks (on UT, >95% of sag) 40 % UT for 5 weeks (on UT, >60% of sag) 70 % UT for 25 weeks (on UT, 30% of sag) <5 % UT for 5s (on UT, >95% of sag)	The grid power supply should have qualities for use in a typical commercial or hospital environment. If the user of the P30/P20 High-Frequency Oscillation Expectoration Machine needs continuous operation during a power outage, it is recommended that the P30/P20 High-Frequency Oscillation

			Expectoration Machine operate from an uninterruptible power supply.
Power frequency magnetic field (50/60Hz) GB/T 17626.8	3 A/m	3 A/m	The power frequency magnetic field should have the power frequency magnetic field level characteristics typical of a site in a typical commercial or hospital environment.
Note: UT refers to the AC grid voltage before the test voltage is applied			

11.3. Guidelines and Manufacturer's Statement - Electromagnetic Immunity

Guidelines and Manufacturer's Statement - Electromagnetic Immunity			
P30/P20 High-Frequency Oscillation Expectoration Machine is expected to be used in the following specified electromagnetic environment and the purchaser or user of the P30/P20 High-Frequency Oscillation Expectoration Machine should			
Immunity Test	**IEC 60601 test**	**Coincide**	**Electromagnetic**
			Portable and mobile RF communication equipment should not be used closer to any part (including cables) of the P30/P20

RF conduction GB/T 17626.6 RF emmission GB/T 17626.3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	3 Vrms 3 V/m	High-Frequency Oscillation Expectoration Machine other than the recommended separation distance. The distance should be calculated by the formula corresponding to the transmitter frequency. **Recommended Separation Distance** $d = 1.2\sqrt{P}$ $d = 1.2\sqrt{P}$ 80 MHz to 800 MHz $d = 2.3\sqrt{P}$ 800 MHz to 2.5 GHz Where *P* is the maximum output power rating of the transmitter in watts (W) provided by the transmitter manufacturer, and *d* is the recommended separation distance in meters (m). [b] The field intensity of a fixed RF transmitter is determined by surveying the electromagnetic field [a], which *should be lower than the coincidence level in each frequency range* [b]. *Interference may occur in the vicinity of the equipment marked with the following symbols.*

Note 1: at the 80MHz and 800MHz frequencies, the formula for the higher frequency band is used.

Note 2: these guidelines may not be appropriate for all situations where electromagnetic transmission is affected by the absorption and reflection of buildings, objects, and the human body.

A The field intensity of fixed transmitters, such as base stations for wireless (cellular/cordless) phones and terrestrial mobile radios, amateur radios, AM (amplitude modulation) and FM (frequency modulation) radio broadcasts, and television broadcasts, cannot be predicted with theoretical accuracy. To evaluate the electromagnetic environment of the stationary RF transmitter, the survey of the electromagnetic site should be conducted. If the measured field intensity of the P30/P20 High-Frequency Oscillation Expectoration Machine site is higher than the RF coincidence level for the above application, the P30/P20 High-Frequency Oscillation Expectoration Machine should be observed to verify its proper operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or positioning the P30/P20 High-Frequency Oscillation Expectoration Machine.

b Over the entire frequency range of 150KHz to 80MHz, the field intensity should be less than 3 V/m.

11.4. Recommended Separation Distance

Recommended separation distance between portable and mobile RF communication devices and P30/P20 High-Frequency Oscillation			
The P30/P20 High-Frequency Oscillation Expectoration Machine is expected to be used in an electromagnetic environment where radiation RF disturbance is controlled. Depending on the maximum output power of the communication equipment, the purchaser or user of the P30/P20 High-Frequency Oscillation Expectoration Machine can prevent electromagnetic interference by maintaining the minimum distance between the portable and mobile RF communication equipment (transmitter) and the P30/P20 High-Frequency Oscillation Expectoration Machine as recommended below.			
The rated maximum output power of the transmitter / W	**Separation distance corresponding to different**		
	150 kHz - 80 MH	**80 MHz ～ 800**	**800**

	z $d = 1.2\sqrt{P}$	**MHz** $d = 1.2\sqrt{P}$	**MHz ～ 2.5 GHz** $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters not listed in the table above, the recommended separation distance *d* , in meters (m), can be determined using the formula in the corresponding transmitter frequency column, where *P* is the maximum output power rating of the transmitter in watts (W) provided by the transmitter manufacturer.

Note 1: at the 80 MHz and 800 MHz frequencies, the formula for the higher frequency range is used.

Note 2: these guidelines may not be appropriate for all situations where electromagnetic transmission is affected by the absorption and reflection of buildings, objects, and the human body.

12. Product Assurance

1. Within two years from the date of purchase, for product quality problems that occur during normal operation and use in accordance with the product manual, **Ambulanc (Shenzhen) Tech. Co., Ltd.** will provide repairs, free of charge. If the warranty period indicated on the product is less than one year, the warranty will end with the end of the validity period indicated in the package or instructions.
2. When applying for guarantee repair, the user must provide a purchase certificate indicating the seller and the date of purchase.
3. The warranty will not be covered under the below conditions:

- Violation of instructions for use
- Error operation
- Improper use/handling
- Unauthorized personnel have repaired the device
- Force majeure, such as lightning strike, etc.
- Transportation damage caused by improper packaging when sending back
- No maintenance and services have been carried out
- Wear due to excessive use or normal wear. Examples of components that fall into this category include:
- Disposable items, etc.
- Use parts other than original spare parts.

4. **Ambulanc (Shenzhen) Tech. Co., Ltd.** shall not be liable for damage caused by defects, provided that the damage is not caused by intent or gross negligence, or by minor negligence resulting in injury to body or life.
5. **Ambulanc (Shenzhen) Tech. Co., Ltd.** shall not be liable for problems that occur during use after the service life of the product has been exceeded.
6. **Ambulanc (Shenzhen) Tech. Co., Ltd.** reserves the right, at its option, to exclude defects, to provide defect-free goods or to reduce the purchase price as appropriate.
7. We shall not be responsible for the return shipping costs if the warranty claim is denied.

8. Statutory warranty claims are not affected by the above.

13. Classification Description of Toxic and Harmful Substances

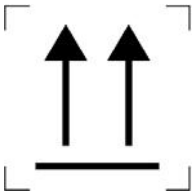
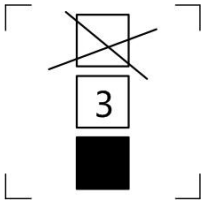
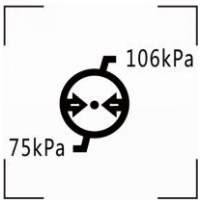
Name and Content of Toxic and Harmful Substances or Elements							
Part Name		Cadmium (Cd)	Mercury (Hg)	Lead (Pb)	Hexavalent chromium (Cr, .VI)	Polybrominated biphenyl (PBB)	Polybrominated diphenyl ether (PBDE)
Display screen		○	○	○	○	○	○
Packing material		○	○	○	○	○	○
Host machine:	PCBA	○	○	○	○	○	○
	Internal connection wire	○	○	○	○	○	○
	Machinery processing parts	○	○	○	○	○	○
Machine housing	Sheet metal parts	○	○	○	○	○	○
	Button	○	○	○	○	○	○
	Label	○	○	○	○	○	○
Trolley	Hardware	○	○	○	○	○	○
Accessories	Atomization components	○	○	○	○	○	○
	Airbag vest	○	○	○	○	○	○
	Power cord	○	○	○	○	○	○
	Wire control switch	○	○	○	○	○	○

×: indicates that a hazardous substance or element in at least one homogeneous material of the component exceeds the limit specified in SJ/T11363-2006.

○: indicates that the hazardous substances or elements in at least one homogeneous material of the component are in the limit specified in SJ/T11363-2006.

14. Storage and Transportation

Packaged products can be transported by road, air or rail. Impact and violent vibration should be prevented during transportation. See the table below:

Graphic symbol	Description	Graphic symbol	Description
	Object stand up		Handle with care
	Avoid wet		Stacking layer limit: 3
	Temperature limit: -20-55℃		
	Pressure range: 75 kPa-106kPa		
	Humidity range: 0%-93% non-condensation		

Warning:

When the storage conditions exceed the requirements of the working environment, it should be placed in a standard environment

for more than 8 hours before it can be used when it is transferred from the storage state to the use state.

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